

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) An apparatus for reproducing information recorded on a disc, comprising:

a reading device that reads information recorded on said disc, wherein said reading device transmits a reproduction signal towards said disc such that said reproduction signal reflects off of said disc to produce a reflected reproduction signal and wherein said reading device outputs a read signal based on said reflected reproduction signal;

a turning device that turns said disc; and

a controller which controls said turning device to turn said disc, and positions said reading device at a first position within a non-program area of said disc and instructs said reading device to focus said reproduction signal on said disc as said disc turns,

wherein, said controller determines if said read signal output from said reading device has a valid signal level when said reading device is positioned at said first position, when said disc is turning,

wherein, if said read signal does not have the valid signal level when said reading device is positioned at said first position, said controller moves said reading device to a second position within a program area of said disc while said reproduction signal remains focused on said disc, when said disc is turning, and

wherein said controller determines if said read signal output from said reading device has a valid signal level when said reading device is positioned at said second position.

2. (Original) The apparatus as claimed in claim 1, wherein said second position is closer to an outer circumference of said disc than said first position.

3. (Previously Presented) The apparatus as claimed in claim 1, wherein said disc comprises a lead-in area and a program area,

wherein said first position is located in said lead-in area and said second position is located in said program area.

4. (Original) The apparatus as claimed in claim 3, wherein said read signal does not have the valid signal level when said reading device is positioned at said first position and when said lead-in area does not contain any information.

5. (Original) The apparatus as claimed in claim 3, wherein said disc is a partially recorded CD-R.

6. (Original) The apparatus as claimed in claim 1, wherein, if said read signal output from said reading device has the valid signal level when said reading device is positioned at said first position, said controller determines that said disc is one of a completely recorded disc and a digital audio compact disc.

7. (Original) The apparatus as claimed in claim 1, wherein, if said read signal output from said reading device has the valid signal level when said reading device is positioned at said second position, said controller determines that said disc is a partially recorded disc.

8. (Original) The apparatus as claimed in claim 1, wherein, if said read signal output from said reading device does not have the valid signal level when said reading device is positioned at said second position, said controller determines that said disc cannot be reproduced.

9. (Original) The apparatus as claimed in claim 1, further comprising:
an amplifier which amplifies said read signal at a gain to produce an amplified signal,
wherein said gain has a first gain level,
wherein said controller determines if said read signal has the valid signal level when said reading device is positioned at said first position by at least indirectly evaluating said amplified signal.

10. (Original) The apparatus as claimed in claim 1, further comprising:
an amplifier which amplifies said read signal at a gain to produce an amplified signal,
wherein said gain has a first gain level,
wherein said controller determines if said read signal has the valid signal level when said reading device is positioned at said second position by at least indirectly evaluating said amplified signal.

11. (Cancelled)

12. (Previously Presented) An apparatus for reproducing information recorded on a disc, comprising:

a reading device that reads information recorded on said disc and outputs a corresponding read signal;

a turning device that turns said disc;

a controller that focuses a reproduction signal, which provides the read signal, on said disc as said disc rotates; and

an amplifier that amplifies said read signal to produce an amplified signal; wherein:

said controller positions said reading device at a first position within a non-program area of said disc and determines if said amplified signal output from said reading device has a valid signal level when said reading device is positioned at said first position by evaluating said amplified signal, as said disc rotates;

wherein, if said amplified signal does not have the valid signal level when said reading device is positioned at said first position, said controller moves said reading device to a second position within a program area of said disc,

wherein said controller determines if said amplified signal output from said reading device has the valid signal level when said reading device is positioned at said second position, as said disc rotates.

13. (Previously Presented) A method for reproducing information recorded on a disc, wherein a reproduction signal is irradiated towards said disc to produce a corresponding read signal, comprising:

(a) positioning said reproduction signal at a first position within a non-program area of said disc;

(b) turning said disc;

(c) attempting to focus said reproduction signal on said disc, as said disc turns;

(d) determining if said reproduction signal is focused on said disc by at least indirectly evaluating said read signal;

(e) if said reproduction signal is focused on said disc, determining if said read signal has a valid signal level when said reproduction signal is positioned at said first position, as said disc turns;

(f) if said read signal does not have the valid signal level when said reproduction signal is positioned at said first position, moving said reproduction signal to a second position within a program area of said disc while said reproduction signal remains focused on said disc; and

(g) determining if said read signal has the valid signal level when said reproduction signal is positioned at said second position, as said disc turns.

14. (Original) The method as claimed in claim 13, wherein said second position is closer to an outer circumference of said disc than said first position.

15. (Original) The method as claimed in claim 13, wherein said disc comprises a lead-in area and a program area,

wherein said first position is located within said lead-in area and said second position is located within said program area.

16. (Original) The method as claimed in claim 15, wherein said read signal does not have the valid signal level when said reproduction signal is positioned at said first position and when said lead-in area does not contain any information.

17. (Original) The method as claimed in claim 15, wherein said disc is a partially recorded CD-R.

18. (Previously Presented) The method as claimed in claim 13, wherein said method further comprises:

(h) if said read signal has the valid signal level when said reproduction signal is positioned at said first position, determining that said disc is one of a completely recorded disc and a digital audio compact disc.

19. (Previously Presented) The method as claimed in claim 13, wherein said method further comprises:

(h) if said read signal has the valid signal level when said reproduction signal is positioned at said second position, determining that said disc is a partially recorded disc.

20. (Previously Presented) The method as claimed in claim 13, wherein said method further comprises:

(h) if said read signal does not have the valid signal level when said reproduction signal is positioned at said second position, determining that said disc cannot be reproduced.

21. (Previously Presented) The method as claimed in claim 13, wherein said operation (e) comprises:

(e1) amplifying said read signal at a gain to produce an amplified signal, wherein said gain has a first gain level; and

(e2) determining if said read signal has the valid signal level when said reproduction signal is positioned at said first position by at least indirectly evaluating said amplified signal.

22. (Previously Presented) The method as claimed in claim 13, wherein said operation (g) comprises:

(g1) amplifying said read signal at a gain to produce an amplified signal, wherein said gain has a first gain level; and

(g2) determining if said read signal has the valid signal level when said reproduction signal is positioned at said second position by at least indirectly evaluating said amplified signal.

23. (Previously Presented) A method for reproducing information recorded on a disc, wherein a reproduction signal is irradiated towards said disc to produce a corresponding read signal, comprising:

- (a) positioning said reproduction signal at a first position within a non-program area of said disc;
- (b) turning said disc;
- (c) focusing said reproduction signal on said disc as said disc rotates;
- (d) amplifying said read signal to produce an amplified signal; and
- (e) determining if said amplified signal has a valid signal level when said reproduction signal is positioned at said first position by evaluating said amplified signal, as said disc rotates;
- (f) if said amplified signal does not have the valid signal level when said reproduction signal is positioned at said first position, moving said reproduction signal to a second position within a program area of said disc;
- (g) determining if said amplified signal has the valid signal level when said reproduction signal is positioned at said second position, as said disc rotates.

24. (Previously Presented) A software program contained on a computer readable medium which is executed by a controller that instructs a reproduction signal to be irradiated towards a disc to produce a corresponding read signal, wherein the software program instructs the controller to perform the operations of:

(a) positioning said reproduction signal at a first position within a non-program area of said disc;

(b) turning said disc;

(c) attempting to focus said reproduction signal on said disc, as said disc turns;

(d) determining if said reproduction signal is focused on said disc by at least indirectly evaluating said read signal;

(e) if said reproduction signal is focused on said disc, determining if said read signal has a valid signal level when said reproduction signal is positioned at said first position, as said disc turns;

(f) if said read signal does not have the valid signal level when said reproduction signal is positioned at said first position, moving said reproduction signal to a second position within a program area of said disc while said reproduction signal remains focused on said disc; and

(g) determining if said read signal has the valid signal level when said reproduction signal is positioned at said second position, as said disc turns.

25. (Original) The software program as claimed in claim 24, wherein said second position is closer to an outer circumference of said disc than said first position.

26. (Original) The software program as claimed in claim 24, wherein said disc comprises a lead-in area and a program area,

wherein said first position is located within said lead-in area and said second position is located within said program area.

27. (Original) The software program as claimed in claim 26, wherein said read signal does not have the valid signal level when said reproduction signal is positioned at said first position and when said lead-in area does not contain any information.

28. (Original) The software program as claimed in claim 26, wherein said disc is a partially recorded CD-R.

29. (Previously Presented) The software program as claimed in claim 24, wherein said software program further instructs the controller to perform the operations of:

(h) if said read signal has the valid signal level when said reproduction signal is positioned at said first position, determining that said disc is one of a completely recorded disc and a digital audio compact disc.

30. (Previously Presented) The software program as claimed in claim 24, wherein said software programs further instructs the controller to perform the operations of:

(h) if said read signal has the valid signal level when said reproduction signal is positioned at said second position, determining that said disc is a partially recorded disc.

31. (Previously Presented) The software program as claimed in claim 24, wherein said software program further instructs the controller to perform the operations of:

(h) if said read signal does not have the valid signal level when said reproduction signal is positioned at said second position, determining that said disc cannot be reproduced.

32. (Previously Presented) The software program as claimed in claim 24, wherein said operation (e) comprises:

(e1) amplifying said read signal at a gain to produce an amplified signal, wherein said gain has a first gain level; and

(e2) determining if said read signal has the valid signal level when said reproduction signal is positioned at said first position by at least indirectly evaluating said amplified signal.

33. (Previously Presented) A software program contained on a computer readable medium which is executed by a controller that instructs a reproduction signal to be irradiated towards a disc to produce a corresponding read signal, wherein the software program instructs the controller to perform the operations of:

(a) positioning said reproduction signal at a first position within a non-program area of said disc;

(b) turning said disc;

(c) focusing said reproduction signal on said disc, as said disc rotates;

(d) amplifying said read signal to produce an amplified signal; and

(e) determining if said amplified signal has a valid signal level when said reproduction signal is positioned at said first position by evaluating said amplified signal, as said disc rotates;

(f) if said amplified signal does not have the valid signal level when said reproduction signal is positioned at said first position, moving said reproduction signal to a second position within a program area of said disc;

(g) determining if said amplified signal has the valid signal level when said reproduction signal is positioned at said second position, as said disc rotates.

34. (Previously Presented) The apparatus as claimed in claim 1, further comprising:

an amplifier which amplifies said read signal at a gain to produce an amplified signal, wherein said gain has a first gain level when said reading device is positioned at said first and said second positions, wherein, if said read signal does not have the valid signal level when said reading device is positioned at said second position:

said controller moves said reading device to a third position within a program area of said disc while said reproduction signal remains focused on said disc and said disc is turning,

said gain is increased to a second gain level; and

said controller determines if said read signal output from said reading device and amplified by said second gain level has a valid signal level when said reading device is positioned at said third position.

35. (Previously Presented) The apparatus as claimed in claim 34, wherein, if said read signal output from said reading device has the valid signal level when said reading device is positioned at said third position, said controller determines that said disc is a partially recorded disc.

36. (Previously Presented) The apparatus as claimed in claim 34, wherein, if said read signal output from said reading device does not have the valid signal level when said reading device is positioned at said third position, said controller determines that said disc cannot be reproduced.

37. (Previously Presented) The apparatus as claimed in claim 12, wherein, if said amplified signal does not have the valid signal level when said reading device is positioned at said second position:

said controller moves said reading device to a third position within a program area of said disc while said reproduction signal remains focused on said disc and said disc is turning,

a gain of said amplifier is increased to provide a second amplified signal; and

said controller determines if said second amplified signal output from said reading device has a valid signal level when said reading device is positioned at said third position.

38. (Previously Presented) The apparatus as claimed in claim 37, wherein, if said second amplified signal output from said reading device has the valid signal level when said reading

device is positioned at said third position, said controller determines that said disc is a partially recorded disc.

39. (Previously Presented) The apparatus as claimed in claim 37, wherein, if said second amplified signal output from said reading device does not have the valid signal level when said reading device is positioned at said third position, said controller determines that said disc cannot be reproduced.

40. (Previously Presented) The method as claimed in claim 13, further comprising:

(h) amplifying said read signal at a gain to produce an amplified signal, wherein said gain has a first gain level when said reproduction signal is positioned at said first and said second positions, wherein, if said read signal does not have the valid signal level when said reproduction signal is positioned at said second position:

(i) moving said reproduction signal to a third position within a program area of said disc while said reproduction signal remains focused on said disc and said disc is turning,

(j) increasing said gain to a second gain level; and

(k) determining if said read signal amplified by said second gain level has a valid signal level when said reproduction signal is positioned at said third position.

41. (Previously Presented) The apparatus as claimed in claim 40, wherein:

(l) if said read signal has the valid signal level when said reproduction signal is positioned at said third position, determining that said disc is a partially recorded disc.

42. (Previously Presented) The apparatus as claimed in claim 40, wherein:

(l) if said read signal does not have the valid signal level when said reproduction signal is positioned at said third position, determining that said disc cannot be reproduced.

43. (Previously Presented) The method as claimed in claim 23, wherein, if said amplified signal does not have the valid signal level when said reproduction signal is positioned at said second position:

(h) moving said reproduction signal to a third position within a program area of said disc while said reproduction signal remains focused on said disc and said disc is turning,

(i) increasing a gain of said amplifier to provide a second amplified signal; and

(j) determining if said second amplified signal has a valid signal level when said reproduction signal is positioned at said third position.

44. (Previously Presented) The apparatus as claimed in claim 43, wherein:

(k) if said second amplified signal has the valid signal level when said reproduction signal is positioned at said third position, determining that said disc is a partially recorded disc.

45. (Previously Presented) The apparatus as claimed in claim 43, wherein:

(k) if said second amplified signal does not have the valid signal level when reproduction signal is positioned at said third position, determining that said disc cannot be reproduced.

46. (Previously Presented) The software program as claimed in claim 24, said operation further comprising:

(h) amplifying said read signal at a gain to produce an amplified signal, wherein said gain has a first gain level when said reproduction signal is positioned at said first and said second positions, wherein, if said read signal does not have the valid signal level when said reproduction signal is positioned at said second position:

(i) moving said reproduction signal to a third position within a program area of said disc while said reproduction signal remains focused on said disc and said disc is turning,

(j) increasing said gain to a second gain level; and

(k) determining if said read signal amplified by said second gain level has a valid signal level when said reproduction signal is positioned at said third position.

47. (Previously Presented) The software program as claimed in claim 46, wherein:

(l) if said read signal has the valid signal level when said reproduction signal is positioned at said third position, determining that said disc is a partially recorded disc.

48. (Previously Presented) The software program as claimed in claim 46, wherein:

(l) if said read signal does not have the valid signal level when said reproduction signal is positioned at said third position, determining that said disc cannot be reproduced.

49. (Previously Presented) The software program as claimed in claim 33, wherein, if said amplified signal does not have the valid signal level when said reproduction signal is positioned at said second position:

- (h) moving said reproduction signal to a third position within a program area of said disc while said reproduction signal remains focused on said disc and said disc is turning,
- (i) increasing a gain of said amplifier to provide a second amplified signal; and
- (j) determining if said second amplified signal has a valid signal level when reproduction signal is positioned at said third position.

50. (Previously Presented) The software program as claimed in claim 49, wherein:

- (k) if said second amplified signal has the valid signal level when said reproduction signal is positioned at said third position, determining that said disc is a partially recorded disc.

51. (Previously Presented) The software program as claimed in claim 49, wherein:

- (k) if said second amplified signal does not have the valid signal level when reproduction signal is positioned at said third position, determining that said disc cannot be reproduced.

52. (Cancelled)

53. (Previously Presented) A method for reproducing information recorded on a disc, comprising:

arranging a pickup unit beneath a disc so that it is movable between a first position corresponding to a lead-in area of the disc, and a second position corresponding to a program area of the disc adjacent to the lead in area;

irradiating a laser beam on the disc from the pickup unit;

receiving the laser beam in the pickup unit after reflection from the disc;

outputting a signal corresponding to the received laser beam;

amplifying the signal to provide an amplified signal;

positioning said pickup unit at said first position; wherein:

if the amplitude of the amplified signal is larger than a predetermined value when said pickup is at the first position, classifying the disc to be an ordinary disc and reproducing the disc;

if the amplitude of the amplified signal is less than the predetermined value when the pickup is located at the first position, moving said pickup to said second position;

if the amplitude of the amplified signal is larger than the predetermined value when the pickup is located beneath the second position, classifying the disc as a partial CD-R disc and reproducing the disc; and

if the amplitude of the amplified signal is less than the predetermined value when the pickup is located at both the first position and the second position, classifying the disc as a blank or abnormal disc and stopping reproduction of the disc.

54. (Previously Presented) A method for reproducing information recorded on a disc, comprising:

arranging a pickup unit beneath a disc so that it is movable between a first position corresponding to a lead-in area of the disc, a second position corresponding to a program area of the disc adjacent to the lead in area, and a third position corresponding to a program area of the disc radially outwardly adjacent to the second position;

irradiating a laser beam on the disc from the pickup unit;

receiving the laser beam in the pickup unit after reflection from the disc;

outputting a signal corresponding to the received laser beam;

amplifying the signal to provide an amplified signal;

positioning said pickup unit at said first position; wherein:

if the amplitude of the amplified signal is larger than a predetermined value when said pickup is at the first position, classifying the disc to be an ordinary disc and reproducing the disc;

if the amplitude of the amplified signal is less than the predetermined value when the pickup is located at the first position, moving said pickup to said second position;

if the amplitude of the amplified signal is larger than the predetermined value when the pickup is located beneath the second position, classifying the disc as a partial CD-R disc and reproducing the disc; and

if the amplitude of the amplified signal is less than the predetermined value when the pickup is located at the second position, moving said pickup to the third position and increasing a gain by which said signal is obtained to provide a higher gain amplified signal;

if the amplitude of the higher gain amplified signal is larger than the predetermined value when the pickup is located beneath the third position, classifying the disc as a partial CD-R disc and reproducing the disc; and

if the amplitude of the higher gain amplified signal is less than the predetermined value when the pickup is located at the third position, classifying the disc as a blank or abnormal disc and stopping reproduction of the disc.

55. (Previously Presented) A method for reproducing information recorded on a disc, comprising:

- moving a pickup to a first position beneath a lead-in area of the disc;
- irradiating a reproduction signal from the pickup onto the lead-in area;
- rotating the disc;
- outputting a pickup signal from the pickup to a gain control section;
- amplifying the pickup signal based on an initial gain to produce an amplified signal;
- focusing the laser beam on the disc;
- determining if the laser beam becomes focused on the disc;
- determining if the amplitude of the amplified signal output from the gain control section is higher than a predetermined value;
- if the amplitude is higher, determining that the disc is an ordinary disc and performing a reproducing operation for an ordinary disc;
- if the amplitude is lower, counting a time t that has elapsed from the time that the reproduction signal has been properly focused on the disc;
- determining whether or not the counted time t is longer than a predetermined time;

if the counted time t is longer than the predetermined time, spinning the disc at a predetermined speed so that the frequency of the signal output from the gain control section equals a predetermined frequency;

moving the pickup radially along the disc to a second position beneath the program area of the disc while the reproduction signal remains focused on the disc; and

determining whether or not the amplitude of the amplified signal is larger than the predetermined value while the pickup is positioned at said second position.

56. (Previously Presented) The method for reproducing information claimed in claim 55, further comprising, if the level of the amplified signal is larger than the predetermined value when the pickup is positioned at said second position,

determining that the disc is a partial disc; and

performing a reproducing operation for the partial disc.

57. (Previously Presented) The method for reproducing information claimed in claim 55, further comprising, if the level of the amplified signal is smaller than the predetermined value when the pickup is positioned at said second position,

instructing a display section to display an "error" message; and

stopping reproducing the disc.

58. (Previously Presented) The method for reproducing information claimed in claim 55, further comprising, if the level of the amplified signal is smaller than the predetermined value when the pickup is positioned at said second position:

moving the pickup radially along the disc to a third position beneath the program area of the disc while the reproduction signal remains focused on the disc;

increasing the initial gain to a higher gain to produce a higher gain amplified signal; and
determining whether or not the amplitude of the higher gain amplified signal is larger than the predetermined value, wherein:

if the amplitude of the higher gain amplified signal is larger than the predetermined value when the pickup is located beneath the third position, classifying the disc as a partial disc and reproducing the disc; and

if the amplitude of the higher gain amplified signal is less than the predetermined value when the pickup is located at the third position, classifying the disc as a blank or abnormal disc and stopping reproduction of the disc.

59. (Previously Presented) An apparatus for reproducing information recorded on a disc; comprising:

reading means for reading information recorded on said disc, wherein said reading means transmits a reproduction signal towards said disc such that said reproduction signal reflects off of said disc to produce a reflected reproduction signal and wherein said reading means outputs a read signal based on said reflected reproduction signal;

turning means for turning said disc; and

controller means for controlling said turning means to turn said disc, for positioning said reading means at a first position within a non-program area of said disc, and for instructing said reading means to focus said reproduction signal on said disc as said disc turns,

wherein, said controller means determines if said read signal output from said reading means has a valid signal level when said reading means is positioned at said first position, when said disc is turning,

wherein, if said read signal does not have the valid signal level when said reading means is positioned at said first position, said controller means moves said reading means to a second position within a program area of said disc while said reproduction signal remains focused on said disc, when said disc is turning, and

wherein said controller means determines if said read signal output from said reading means has a valid signal level when said reading means is positioned at said second position.

60. (Previously Presented) An apparatus for reproducing information recorded on a disc, comprising:

reading means for reading information recorded on said disc and outputs a corresponding read signal;

turning means for turning said disc;

controller means for focusing a reproduction signal, which provides the read signal, on said disc as said disc rotates; and

amplifier means for amplifying said read signal to produce an amplified signal; wherein:

said controller means positions said reading means at a first position within a non-program area of said disc and determines if said amplified signal output from said reading means has a valid signal level when said reading device is positioned at said first position by evaluating said amplified signal, as said disc rotates;

wherein, if said amplified signal does not have the valid signal level when said reading means is positioned at said first position, said controller means moves said reading means to a second position within a program area of said disc,

wherein said controller means determines if said amplified signal output from said reading means has the valid signal level when said reading means is positioned at said second position, as said disc rotates.

61. (Previously Presented) A method for reproducing information recorded on a disc, comprising:

a turning device for turning a disc;

a control device for focusing a reading beam on a first position on said disc as said disc turns;

a pickup device for receiving a first reflected reading beam corresponding to said reading beam reflected from said first position; wherein:

said controller detects a signal level based on a level of said first reflected reading beam;

said controller moves said reading beam from said first position to a second position on said disc while said reading beam remains focused on said disc and said disc remains turning, wherein said second position is radially different than said first position;

said controller receives a second reflected reading beam corresponding to said reading beam reflected from said second position; and

said controller detects a signal level based on a level of said second reflected reading beam.